

HAND-HELD ELECTRONIC TOY

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Background of the Invention

[1001] This invention relates generally to hand-held electronic toys, and more particularly to hand-held electronic toys having screens that enable user interaction.

[1002] Hand-held electronic toys that incorporate visual sensory elements have become immensely popular. In the gaming arena, these hand-held electronic toys produce a high-level of sensory stimulation and interactivity. This combined with their inherent portability has created a new form of child entertainment. Beyond the gaming arena, it is believed that hand-held electronic toys can also be used to promote intellectual and tactile creativity.

Summary

[1003] The present invention provides a hand-held electronic toy that can be used in creativity and learning activities. The hand-held electronic toy exposes a tool interface that can be dynamically changed based on characteristics of the activity that is being displayed on the hand-held electronic toy.

Brief Description of the Drawings

[1004] FIG. 1 is a front view of an embodiment of a hand-held electronic toy.

[1005] FIG. 2 is an embodiment of a toolbar menu.

- [1006] FIG. 3 is an embodiment of a pop-up menu box.
- [1007] FIG. 4 is an operational flowchart of a hand-held electronic toy.
- [1008] FIG. 5 is an embodiment of an activity menu.
- [1009] FIG. 6 is an embodiment of a microprocessor control portion of a hand-held electronic toy.
- [1010] FIG. 7 is an embodiment of a liquid crystal display and touch panel control portion of a hand-held electronic toy.
- [1011] FIG. 8 is an embodiment of an expansion cartridge.
- [1012] FIG. 9 is a second embodiment of an expansion cartridge.

Detailed Description

[1013] An embodiment of the invention is discussed in detail below. While specific implementations are discussed, it should be understood that this is done for illustration purposes only. A person skilled in the relevant art will recognize that other components and configurations may be used without departing from the spirit and scope of the invention.

[1014] FIG. 1 is a front view of an embodiment of hand-held electronic toy 100. Hand-held electronic toy 100 includes screen 110 that enables visual sensory output and user interaction. User interaction is effected through drawing stylus 120. In one embodiment, screen 110 is a liquid crystal display (LCD) based, touch screen.

[1015] System software drives the functionality of hand-held electronic toy 100 and enhances play with sound and animation. In the illustrated embodiment, hand-held electronic toy 100 can also include expansion cartridge 130 that can be attached to hand-held electronic

toy 100 via an expansion port. In general, expansion cartridge 130 enables hand-held electronic toy 100 to expand its functionality to a multitude of additional creativity and learning activities.

[1016] As further illustrated in the embodiment of FIG. 1, screen 110 includes printed toolbar menu 112. Toolbar menu 112 includes a set of basic menu tools that are selectable using stylus 120. As will be described in greater detail below, the functionality of the menu tools can change depending on an activity that has been selected as well as the state of the activity being run.

[1017] FIG. 2 is a detailed view of printed toolbar menu 112. In the illustrated embodiment, toolbar menu 112 includes nine selectable icons 201-209.

[1018] Selectable icon 201 is associated with a pencil tool for free-form drawing. Selection of icon 201 enables the user to draw with a single pixel width line on screen 110.

[1019] Selectable icon 202 is associated with a straight line tool for drawing straight lines of different thickness. Selection of icon 202 will call up a pop-up menu box. An embodiment of a pop-up menu box 300 is illustrated in FIG. 3. In the illustrated embodiment, pop-up menu box 300 offers the user two choice icons 310 and 320. Choice icon 310 will enable selection of a thin (1-pixel width) straight line, while choice icon 320 will enable a selection of a thick (3-pixel width) straight line.

[1020] Selectable icon 203 is associated with a shapes tool. Selection of icon 203 will call up a pop-up menu box. In one embodiment, the pop-up menu box offers the user his/her choice of a square drawing tool, a circle drawing tool, a triangle drawing tool, or a polygon drawing tool. These tools draw the shapes in outline form. The square, circle and triangle